H

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/781,274	02/13/2001	Yoshiki Ohta	Q62548	9429

7590 02/26/2004

SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037-3202

EXAMINER	
MICHALSKI, JUSTIN I	

ART UNIT	PAPER NUMBER
2644	H

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/781,274	OHTA, YOSHIKI	
	Examiner	Art Unit	
	Justin Michalski	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 2/13/2001.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-9 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-9 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 5, 7, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Plunkett (US Patent 5,386,478).

Regarding Claim 1, Plunkett discloses a sound field correcting method in an audio system which includes a plurality of variable gain type frequency discriminating means for discriminating input audio signals into a plurality of frequencies (equalizers in modules 24) (Column 2, lines 36-38), and delaying means (delay module 40) for adjusting delay times of the audio signals that are frequency-discriminated by the variable gain type frequency discriminating means (24), whereby the audio signals are supplied to sound generating means (speakers 14) via the variable gain type frequency discriminating means and the delaying means, said method comprising: a first step of supplying a noise to the sound generating means via the variable gain type frequency discriminating means and the delaying means (command module generates a test, i.e. noise, signal) (Column 3, line 28), and then detecting reproduced sounds generated by the sound generating means (microphone 36); a second step of analyzing frequency characteristics of the reproduced sounds based on detection results detected by said first step in answer to the variable gain type frequency discriminating means (Plunkett

discloses separately controllable frequency bands as a function of the test signal) (Paragraph bridging columns 3 and 4); a third step of supplying the noise to the sound generating means via the plurality of variable gain type frequency discriminating means and the delaying means (command module generates a test, i.e. noise, signal) (Column 3, line 28), and then detecting the reproduced sounds generated by the sound generating means (microphone 36); a fourth step of analyzing delay characteristics (i.e. delay compensation) (Column 4, lines 5-16) of the reproduced sounds based on the detection results detected by the third step, and a fifth step of adjusting frequency characteristics of the variable gain type frequency discriminating means based on the frequency characteristics obtained by said second step (Plunkett discloses separately controllable frequency bands as a function of the test signal) (Paragraph bridging columns 3 and 4), and adjusting delay times of the delaying means based on the delay characteristics obtained by said fourth step (delay introduced to compensate for longer signal) (Column 4, lines 5-16).

Regarding Claim 2, Plunkett further discloses the reproduced sounds generated by the sound generating means are detected plural times (Plunkett discloses command module can deliver test signals to each loudspeaker (i.e. plural) (Column 3, lines 28-30) by repeating said first step plural times (i.e. for each speaker), the frequency characteristics are analyzed in said second step based on multiplied values of plural times detection results (Plunkett discloses analyzing resultant acoustic signals (i.e. multiplied values) (Column 3, lines 28-35), and the frequency characteristics of the variable gain type frequency discriminating means are adjusted in said fifth step based

on the frequency characteristics obtained from the multiplied values (correction (i.e. adjustment) information is sent to command module) (Column 3, lines 33-35).

Regarding Claim 5, Plunkett discloses a sound field correcting method in an audio system (Figure 1) which supplies a plurality of input audio signals (outputs of source block 22) to a plurality of sound generating means (speakers 14) via a plurality of signal transmission lines (lines from control modules 24 to speakers 14), each of the signal transmission lines including a plurality of variable gain type frequency discriminating means for discriminating input audio signals into a plurality of frequencies (modules 24 contain circuitry for equalization (i.e. frequency discriminating means) (Column 2, lines 36-41), channel-to-channel level adjusting means for adjusting levels of the audio signals (Plunkett discloses balance adjustment circuitry, i.e. channel-to-channel level adjustor, in modules 24) (Column 3, lines 49-52), and delaying means (delay unit 40) for adjusting delay times of the audio signals that are frequency-discriminated by the variable gain type frequency discriminating means, whereby the audio signals are supplied to sound generating means via the variable gain type frequency discriminating means, the channel-to-channel level adjusting means, and the delaying means, said method comprising: a first step of supplying a noise to respective signal transmission lines via the variable gain type frequency discriminating means, the channel-to-channel level adjusting means, and the delaying means (command module generated a test, i.e. noise, signal) (Column 3, line 28), then detecting reproduced sounds generated by the sound generating means via respective signal transmission lines (microphone 36), and then analyzing frequency characteristics of the reproduced

sounds via respective signal transmission lines based on detection results in answer to the variable gain type frequency discriminating means (Plunkett discloses separately controllable frequency bands as a function of the test signal) (Paragraph bridging columns 3 and 4); a second step of adjusting frequency characteristics of the variable gain type frequency discriminating means on respective signal transmission lines based on the frequency characteristics obtained by the first step (Plunkett discloses separately controllable (i.e. adjusting) frequency bands as a function of the test signal) (Paragraph bridging columns 3 and 4); a third step of supplying the noise to respective signal transmission lines via the variable gain type frequency discriminating means, the channel-to-channel level adjusting means, and the delaying means (command module generates a test, i.e. noise, signals) (Column 3, lines 28), then detecting the reproduced sounds generated by the sound generating means via respective signal transmission lines (microphone 36), and then analyzing delay characteristics of the reproduced sounds via respective signal transmission lines based on detection results (remote control unit 34); a fourth step of adjusting delay times of the delaying means on respective signal transmission lines based on the delay characteristics obtained by said third step (delay introduced to compensate for longer signal) (Column 4, lines 5-16); a fifth step of supplying the noise to respective signal transmission lines via the variable gain type frequency discriminating means (command module generates a test, i.e. noise, signals) (Column 3, lines 28), the channel-to-channel level adjusting means, and the delaying means, then detecting the reproduced sounds generated by the sound generating means via respective signal transmission lines, and then analyzing levels of

the reproduced sounds via respective signal transmission lines based on detection results (remote control unit 34); and a sixth step of adjusting the channel-to-channel level adjusting means based on analyzed results of the levels of the reproduced sounds obtained by said fifth step via respective signal transmission lines (Plunkett discloses balance adjustment (i.e. channel-to-channel adjustment) of amplifiers in modules 24 (Column 3, lines 51-52).

Regarding Claim 7, Plunkett further discloses first step and said second step are repeated plural times (Plunkett discloses command module can deliver test signals to each loudspeaker (i.e. plural) (Column 3, lines 28-30), and said first step is performed under such a condition that the frequency characteristics of the variable gain type frequency discriminating means are adjusted in said second step (frequency is adjusted based on test (i.e. noise) signal) (Paragraph bridging columns 3 and 4).

Regarding Claim 8, Plunkett further discloses an adjusted amount of the plurality of channel-to-channel level adjusting means (balance adjustor 24) are corrected such that a spectrum average level of the reproduced sounds reproduced by the plurality of sound generating means are made flat over all audio frequency bands (Plunkett discloses any unbalance (i.e. over full frequency range) is corrected) (Column 3, lines 49-52).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 3 and 4, are rejected under 35 U.S.C. 103(a) as being unpatentable over Plunkett as applied to claim 1 above in view of Koyama et al. (US Patent 5,581,621).

Regarding Claim 3, Plunkett discloses a method as stated apropos of claim 1 above but does not disclose adjusting the frequency discriminating means previously by using a target curve data. Koyama et al. discloses an automatic adjustment system and method for and audio device. Koyama et al. discloses a method (Figure 4) of adjusting an audio device where frequency discriminating means are adjusted previously using previous target data (step S2 discloses loading current (i.e. previous) data from the DSP and backup) (Column 15, lines 59-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include previous target data to load a preexisting setting or use a backed up setting as disclosed by Koyama et al. in order to produce a more reliable automatic adjustment.

Regarding Claim 4, Plunkett discloses a method as disclosed apropos of claim 1 above but does not disclose analyzing based on an average of a plurality of results. Koyama et al. discloses a method of making an automatic adjustment to a parameter of an audio system based on an average level of a low band frequency response (Column 24, lines 54-59). Although the adjustment is made base on an average of a frequency response rather than an average time detection result, it would have been obvious to one skilled in the art at the time the invention was made to analyze and make an

adjustment based on an average of several values as disclosed by Koyama et al. automatically making an adjustment to enhance the output of an audio system.

5. Claims 6 and 9, are rejected under 35 U.S.C. 103(a) as being unpatentable over Plunkett as applied to claim 5 above in view of Koyama et al. (US Patent 5,581,621).

Regarding Claim 6, Plunkett discloses a method as stated apropos of claim 5 above but does not disclose adjusting the frequency discriminating means previously by using a target curve data. Koyama et al. discloses a automatic adjustment system and method for and audio device. Koyama et al. discloses a method (Figure 4) of adjusting an audio device where frequency discriminating means are adjusted previously using previous target data (step S2 discloses loading current (i.e. previous) data from the DSP and backup) (Column 15, lines 59-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include previous target data to load a preexisting setting or use a backed up setting as disclosed by Koyama et al. in order to produce a more reliable automatic adjustment.

Regarding Claim 9, Plunkett discloses a method as stated apropos of claim 5 above including a multi-channel audio system (Figure 1) that supplies the audio signals to all frequency band sound generating means (speakers 14). Plunkett does not disclose a low frequency band exclusively reproducing sound generator. Koyama et al. discloses an automatic adjustment system of an audio device (Figure 1) comprising a low frequency band exclusively reproducing sound generator (Figure 2, converter 26 and signal 2a for subwoofer). It would have been obvious to one or ordinary skill in the

art at the time the invention was made to include a low frequency sound generator such as a subwoofer as disclosed by Koyama et al. along with other channels in order to obtain a more high fidelity audio output from the system.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin Michalski whose telephone number is (703)305-5598. The examiner can normally be reached on 8 Hours, 5 day/week.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Isen can be reached on (703)305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JIM

XU MEI
PRIMARY EXAMINER